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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 15

Application Number: 08/795,961
Filing Date: February 4, 1997
Appellant(s): John Fyson

J. Lanny Tucker
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed May 6, 1999.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained

in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1, 3, 4, 6-9, 11-20 and 10 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

DE 3635219 A1	REIβNER et al.	4-1988

5,552,063 YAN 9-1996

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 3, 4 and 6-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 36 35 219 A1 in view of Yan, U.S. Patent No. 5,552,063 (abstract; col. 1, lines 30-37; col. 1, line 64-col. 2, line 7; col. 4, lines 56-67; col. 5, lines 2-7, 20-24; col. 6, lines 7-10).

DE 36 35 219 A1 discloses a process for the oxidation of aqueous solutions containing low concentrations of thiosulfate using hydrogen peroxide catalyzed with a solution of molybdate. DE 36 35 219 A1 suggests that the process is useful to treat photographic waste effluents. The instant claims differ from DE 36 35 219 A1 by reciting that the catalyst is immobilized on a substrate. The instant specification discloses that a disadvantage of DE 36 35 219 A1 is that while sulfur-containing species are reduced by the catalytic oxidation process, transition metal catalysts, e.g. molybdenum, are subsequently released into the environment as contaminants.

Yan discloses a process that is analogous to the process of DE 36 35 219 A1 because both processes solve the same problem in substantially the same manner, which is treating waste water containing reduced substances by catalytic oxidation. Yan discloses a process for catalytically oxidizing offensive substances in waste water, including sulfites and thiosulfates, wherein the catalyst is supported. The catalyst of Yan is a Group VIII or Group VIA metal or metal compound, wherein the term "metal or metal compound" is intended to include elemental metal or

metal oxides, and therefore includes molybdate. The support is an inert material, such as an ion-exchange resin, porous resin and/or activated carbon. Yan discloses that the problem with conventional waste water treatment processes for stream having low concentrations of offensive substances is the introduction of undesirable substances into the wastewater from metal catalysts, and that the supports used in the process of Yan are those that are inert or resistant to decomposition, dissolution and leaching.

Therefore, it would have been obvious to one of ordinary skill in the art to have included a support for the catalyst in the process of DE 36 35 219 A1, in view of Yan, in order to catalytically oxidize reduce substances in waste water while minimizing the discharge of toxic transition metals into the treated waste effluent.

It is submitted that the supports utilized by Yan are porous and thus would present a large surface area of catalyst to the effluent to be treated, as recited in instant claim 7. It is noted that Yan, in Example 1, discloses a pH of 8.4, which is within the pH range recited in instant claim 12. It is well-known in the art of water treatment to add a basic agent when it is desired to raise the pH of the water, and the sources of alkali recited in instant claims 13 and 14 are conventional agents used for pH adjustment in waste water treatment applications; therefore, it would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to have added the recited source of alkali in the processes of DE 36 35 219 A1 in view of Yan, in order to have adjusted the pH to a level at which the process would proceed efficiently. It is further submitted that the apparatus for contacting the photographic waste effluent with the

supported catalyst as recited in instant claims 15-20 is broadly readable on the packed bed disclosed by Yan. Furthermore, continuous flow means, inlets, outlets, holding tanks, and pumps are all conventional equipment used to handle waste water being oxidatively treated in a continuous-flow manner.

(11) Response to Argument

In the Appeal Brief, Appellant argues that Reiβner et al. does not support the catalyst on a support, and that Yan does not properly overcome the deficiencies in Reiβner et al. because of several points of difference. Appellant argues that Yan does not relate to photographic waste effluent. However, Reiβner et al., the primary reference, disclose a process for the catalytic oxidation of waste water containing low concentrations of thiosulfate, and suggests that the process is applicable to the treatment of photographic waste effluent. Yan discloses a process that is analogous to the process of Reiβner et al., comprising the catalytic oxidation of offensive substances, including sulfites and thiosulfates, contained in wastewater (see the abstract of Yan). Yan discloses that a problem with waste water treatment processes for streams having low concentrations of offensive substance is the introduction of undesirable substances into the treated waste water by metal catalysts, and Yan overcomes this problem by including a catalyst support that is inert or resistant to decomposition, dissolution and leaching (see column 2, line 64-column 3, line 7 and column 6, lines 7-10 of Yan). One of ordinary skill in the art of waste water treatment would have been expected, upon practicing the invention of Reiβner et al., to have looked to the art of wastewater treatment by catalytic

oxidation to solve the problem of introducing undesirable substances from the metal catalysts into the treated effluent. One of ordinary skill in the art would have been motivated to have modified the process of Reiβner et al. by including the catalyst support disclosed by Yan, because Yan discloses, in a process that is analogous to Reiβner et al., that the support is a solution to this problem.

Appellant argues that Yan teaches the use of air as an oxygen source and discloses that hydrogen peroxide is not contemplated to be intentionally added as a source of oxygen for the process. However, Appellant cannot show non-obviousness by attacking references individually where, as here, the rejection is based on a combination of references. Reiβner et al. disclose the use of hydrogen peroxide as the oxidant for oxidizing aqueous solutions containing thiosulfate, and one of ordinary skill in the art would have been guided by Reiβner et al. for the choice of oxidant.

Appellant argues that Yan discloses the use of catalysts selected from the group of NiMo, NiW and CoMo on activated carbon and not their oxidized forms. However, Yan discloses that suitable catalysts comprise a combination of Group VIII and Group VIA metals or metal compounds, and that the term "metal or metal compounds" is intended to include metal oxides. Therefore, molybdate is included in the choice of catalyst used in the process of Yan. Appellant argues that Yan discloses that catalysts containing copper, cobalt, molybdenum and tungsten alone on activated carbon are ineffective and refers to column 11, lines 25-26. However, this disclosure in Yan is for one particular embodiment of the

invention, which is the treatment of refinery waste water, and Yan discloses that the metals alone on the support are ineffective for this specific application.

Appellant argues that Yan discloses specific operating temperatures and pressures. However, one of ordinary skill in the art would have been guided by Reiβner et al. for the selection of reaction conditions. Furthermore, the instant claims do not exclude the operating conditions of Yan.

Appellant argues that Reiβner et al. does not teach or suggest that the photographic effluent being treated resulted from the development step of a RX process, as recited in instant claim 10. However, the process of Reiβner et al. does not exclude the treatment of photographic effluent from a process with a redox-amplifier developer, but includes the treatment of any aqueous stream containing a low thiosulfate concentration. It is submitted that the photographic effluent from a process with a redox-amplifier developer has a low thiosulfate concentration, and therefore, the treatment of photographic effluent from the development step of a RX process is included in the process of Reiβner et al.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

David A. Simmons
Supervisory Patent Examiner
Technology Center 1700

BJM
July 30, 1999